

ATTACHMENT B

1. Project B and BC:

25X1C

On arrival at 228 Leningrad Chaussee in October 1950, the [REDACTED] (OKB-3) group was administratively and operationally reorganized and given the official designation [REDACTED]. This group was under the technical direction of [REDACTED]. From October 1950 until about November 1952 the main project in this group was the design, fabrication, and development of a stabilizing and control system for a surface-to-air guided missile. Although not immediately identified as such, the program was known to the Soviets and Germans alike as Project B (Cyrillic Russian). Sometime in 1952, after the initial development was completed, the identification was changed to Project BC (Cyrillic Russian). There were no significant changes between the last "B" and the early "BC" models. From the time the final prototype of the stabilizing and control system was completed [REDACTED] end of 1950 until April 1954 approximately forty (40) complete Project B (or BC) systems were fabricated in [REDACTED] workshop No. 16. Source knows that an unidentified number of components were being manufactured in a similar Soviet-staffed workshop in the Leningrad Chaussee installation. In addition, it was known that the complete steering system was being manufactured in two (2) unknown other Soviet plants in the Moscow area. Source knew that the [REDACTED] Group was engaged with radio-electrical systems and that some of the group were concerned with the development of a system to command the MOELLER rudder system. No direct contact or liaison was present between the German groups. All liaison was performed by the Soviet's Ballahov and Panifov.

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2. Flight Testing: The B and/or BC system was known to have been flight tested during 1952 and 1953. Source knew that tests were conducted somewhere near Stalingrad since his personal friend [REDACTED] attended on several occasions. Source received the general impression that flights did not utilize command guidance.

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3. Stabilization and Steering:

The Project B (BC) stabilizing system was for a vertically launched missile which after a foreset time turned over into an inclined flight path. The missile is believed to have had a body diameter of approximately fifty-five (55) centimeters at the station where aerodynamic control was to be effected. Source estimates the length of the missile to be ten (10) meters. The stabilizing control was effected by three (3) single degree of freedom integrating gyros which were rigidly secured into a sealed container. The single degree of freedom about the precession axis was limited to plus and minus nine (9) degrees. The sensitivity of the gyros was one-tenth (1/10) degree with a natural frequency estimated to be from four (4) to six (6) cycles per second in pitch and yaw, and

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eight (8) to ten (10) cycles per second in roll. Other control components consisted of three (3) servo-actuator valves, three (3) pneumatic actuators, a pendulum-type lateral accelerometer and a remote-start time switch. The latter was a simple clock driven time switch for operating a relay at a pre-set time after start, for programming the flight path from the vertical.

#### 4. Missile Steering Surfaces:

The linkage and assembly of the actuators to the control surfaces was observed by source in the [REDACTED] The assembly was called 25X1C the "rudder ring". A sketch will be included in the PIR (EG-1773) to be published approximately 20 February. The control surfaces were moved by three (3) pneumatic actuators; two large and one small. The smaller was for differential operation of one opposite pair of control surfaces for roll stabilization. Sometime in 1953, a completed Soviet designed electric motor-powered, gear driven differential actuator was developed as a possible replacement for the pneumatic actuator used for roll control.

The four control fins were mounted peripherally on the main body at ninety (90) degree intervals. The fin dimensions are estimated as follows:

Fin Length (at missile body junction) 55 cm.

Fin Height - 20 cm.

Fin Length at Tip: One-third to one-half of long dimension.

Source does not know where the "rudder ring" was physically stationed lengthwise on the missile body. The missile body portion was 35 cm longitudinally and 55 cm in diameter.

#### B. Project UTM: (Cyrillic Russian)

Work began on a new project referred to as (UTM) at Workshop 16 in about November 1952. Source believed this to be an air-to-air or air-to-surface missile. NOTE: Sources REG-359 and REG-361 identified Project UTM as an air-to-air missile.

Source does not know the basic principles of guidance, stabilization, propulsion or launching of the missile. [REDACTED] had the task of 25X1C designing and fabricating certain components which were to go inside of two furnished magnesium missile sections each of twenty (20) cm outside diameter, and twenty-four (24) cm in length. Workshop 16 fabricated sufficient assemblies for six (6) to ten (10) missiles. The components were known to have been experi-

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model or test models, however no deviation from furnished drawings was permitted. The two sections were identified as OTCeK 3 and OTCeK 4. OTCeK 3 contained two (2) pairs of large fins and two (2) pairs of smaller fins. The large fin pairs were for yaw and pitch control. The smaller fin pairs for roll control were to be mounted of, and interdigitated with respect to the large fins. OTCeK 3 contained the pneumatic actuators and linkages for the control surfaces. It was mated from the inside to OTCeK 4. This section drawn as being forward of OTCeK 3 contained the gyros, accelerometers and two one liter air flasks with pressure gauges. Two depressions existed in the OTCeK 4 shell which were to the forward and spaced circumferentially by one-hundred-eighty (180) degrees. The depressions were lined with thick asbestos. Attached forward of OTCeK 4 was a cylindrical steel section referred to as (Wayb) twenty (20) cm long having long conical exhaust tubes. These tubes extended from near the center of the cylinder and protruded over the asbestos covered recesses of OTCeK 4. Source cannot recall how many gyros were mounted within the OTCeK 4 section or the direction of the mounting. He thought that the gyros were of Soviet design, although actually modified copies of the MOELLER integrating gyro used in the BC system. Two lateral air-ported accelerometers were utilized also which to the best of source's knowledge were purely of Soviet design. These accelerometers had a maximum range of about 10 to 12 "Gs". Source will provide drawings of this accelerometer at a later date.

Workshop 16 fabricated parts associated only with OTCeK 3 and OTCeK 4, and source knows nothing of other sections of the missile other than the reported twenty (20) cm steel section.

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